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L11: Entry 4 of 5

File: DWPI

Oct 12, 1988

DERWENT-ACC-NO: 1988-288058  
DERWENT-WEEK: 198841  
COPYRIGHT 2003 DERWENT INFORMATION LTD

TITLE: Electric, gas or microwave cooking oven - has microprocessor predicting time at which food will be cooked depending on food probe temp.

Basic Abstract Text (1):

The output of a food probe inserted in a food item is compared with a preset temperature to determine when the food item is cooked. A microprocessor predicts the time at which the food will be cooked. Repeated measurements are made of the probe temperature to estimate when the pre-set temperature will be reached. The predicted cooking time may be displayed continuously or on demand.

Basic Abstract Text (2):

The second derivative of the variation of probe temperature with respect to time is measured in which the processor determines the rate of temperature rise of the probe after a peak has occurred in the second derivative. The processor is arranged to repeatedly predict the time at which the food item will be cooked.

Basic Abstract Text (3):

ADVANTAGE - Provides good indication of time at which cooking will be completed.

PF Publication Date (1):

19881012

PF Publication Date (2):

19910508

Equivalent Abstract Text (1):

A cooking oven comprising a food probe for insertion in a food item to be cooked and for affording an output indicative of the temperature thereof, means for comparing, after a peak has occurred in the second derivative of the output of the food probe with respect to time, the output of the food probe with a preset temperature for determining when said food item is cooked, and means operable on the output of the food probe for predicting the time at which said food item will be cooked.

Standard Title Terms (1):

ELECTRIC GAS MICROWAVE COOK OVEN MICROPROCESSOR PREDICT TIME FOOD COOK DEPEND FOOD PROBE TEMPERATURE

## End of Result Set



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L11: Entry 5 of 5

File: DWPI

Jan 22, 1986

DERWENT-ACC-NO: 1986-022677  
 DERWENT-WEEK: 198604  
 COPYRIGHT 2003 DERWENT INFORMATION LTD

TITLE: Microwave oven with fan and electrical heating element - simultaneously applies microwave power and hot air to cavity and controls cooking time as function of variation of hot air temp.

INVENTOR: EKE, K I

PATENT-ASSIGNEE: MICROWAVE OVENS LTD (MICRN)

PRIORITY-DATA: 1984GB-0017644 (July 11, 1984)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 169000 A	January 22, 1986	E	019	
AU 8544505 A	January 16, 1986		000	
CA 1236174 A	May 3, 1988		000	
DE 3570513 G	June 29, 1989		000	
EP 169000 B	May 24, 1989	E	000	
US 4647746 A	March 3, 1987		000	

DESIGNATED-STATES: BE DE FR GB IT SE BE DE FR GB IT SE

CITED-DOCUMENTS: A3...198749; EP 122710 ; EP 23971 ; FR 2510239 ; GB 2124408 ;  
 No-SR.Pub

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
EP 169000A	June 28, 1985	1985EP-0304652	
US 4647746A	July 8, 1985	1985US-0752592	

INT-CL (IPC): F24C 7/08; H05B 6/68

ABSTRACTED-PUB-NO: EP 169000A  
 BASIC-ABSTRACT:

A triac (14) controls the supply of power to a cavity lamp (16) and blower (18) which cools the magnetron. A convection timer controls a second triac (20) which passes current to a third triac (22) and a convection motor (24) which drives a fan to blow air over an electrical resistance heater (32). The resulting flow of hot air is forced through the oven cavity and produces browning of the food being cooked by microwave power supplied to the cavity.

A thermistor, provided in the hot air flow following its passage over the resistance heater, senses the gradient of the temperature-time curve. Temperature readings are taken at a predetermined interval, say four minutes from cold, and a microcomputer calculates the gradient. The time to reach a temperature of 250 degrees Celsius is predicted and is set to turn off the oven.

ADVANTAGE - Gradient of hot air temperature curve is characteristic of foodstuff being cooked, and is used to predict accurately when that foodstuff will be done.

ABSTRACTED-PUB-NO: EP 169000B  
EQUIVALENT-ABSTRACTS:

A microwave oven comprising a microwave generator for supplying microwave power to a cavity of the oven, thermal heating means for supplying a forced flow of hot air to the cavity simultaneously with the microwave power, means for monitoring the variation in hot air temperature with time, means for sensing said variation after a predetermined time interval short in comparison with the time taken to cook food items in the oven, and processing means responsive to the sensing means for predicting the time at which the hot air temperature will reach a particular threshold, and means for discontinuing the supply of power to the microwave generator and the thermal heating means after the predicted time has elapsed. (10pp)

US 4647746A

The microwave oven has a magnetron for supplying microwave power to a cavity of the oven, and an electrical resistance heating element over which air is blown by a fan to provide a forced flow of hot air through the cavity. The variation in hot air temp. is monitored, and the slope of the temp./time variation is sensed after a predetermined time interval from the commencement of cooking with the oven in a cold condition.

The sensed slope is then used to predict the time period it will take the hot air temp. to reach a predetermined threshold, and the microwave power and the hot air are discontinued after the predicted time period has elapsed. (9pp)p

CHOSEN-DRAWING: Dwg.1/5

DERWENT-CLASS: Q74 X27  
EPI-CODES: X27-C01;

## End of Result Set



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L11: Entry 5 of 5

File: DWPI

Jan 22, 1986

DERWENT-ACC-NO: 1986-022677

DERWENT-WEEK: 198604

COPYRIGHT 2003 DERWENT INFORMATION LTD

TITLE: Microwave oven with fan and electrical heating element - simultaneously applies microwave power and hot air to cavity and controls cooking time as function of variation of hot air temp.

PF Publication Date (1):

19860122

PF Publication Date (2):

19860116

PF Publication Date (3):

19880503

PF Publication Date (4):

19890629

PF Publication Date (5):

19890524

PF Publication Date (6):

19870303

Equivalent Abstract Text (1):

A microwave oven comprising a microwave generator for supplying microwave power to a cavity of the oven, thermal heating means for supplying a forced flow of hot air to the cavity simultaneously with the microwave power, means for monitoring the variation in hot air temperature with time, means for sensing said variation after a predetermined time interval short in comparison with the time taken to cook food items in the oven, and processing means responsive to the sensing means for predicting the time at which the hot air temperature will reach a particular threshold, and means for discontinuing the supply of power to the microwave generator and the thermal heating means after the predicted time has elapsed. (10pp)

Equivalent Abstract Text (2):

The microwave oven has a magnetron for supplying microwave power to a cavity of the oven, and an electrical resistance heating element over which air is blown by a fan to provide a forced flow of hot air through the cavity. The variation in hot air temp. is monitored, and the slope of the temp./time variation is sensed after a predetermined time interval from the commencement of cooking with the oven in a cold condition.

Standard Title Terms (1):

MICROWAVE OVEN FAN ELECTRIC HEAT ELEMENT SIMULTANEOUS APPLY MICROWAVE POWER HOT AIR CAVITY CONTROL COOK TIME FUNCTION VARIATION HOT AIR TEMPERATURE

# WEST Search History

DATE: Monday, July 28, 2003

Set Name Query  
side by side

Hit Count Set Name  
result set

*DB=PGPB,JPAB,EPAB,DWPI,TDBD; THES=ASSIGNEE; PLUR=YES;  
OP=OR*

L11	L7 and ((inventory or predict\$ or forecast\$) with food)	5	L11
L10	L8 and ((inventory or predict\$ or forecast\$) with food)	0	L10
L9	L8 and (inventory or ((predict\$ or forecast\$) with food))	0	L9
L8	L7 and restaurant	93	L8
L7	(cook\$ with (time or timing or duration or (start\$ with stop\$ with time))) and @pd<=19970527	6854	L7

*DB=USPT; THES=ASSIGNEE; PLUR=YES; OP=OR*

L6	L4 and l3	9	L6
L5	((705/8  705/9 )!.CCLS. )	649	L5
L4	((705/15 )!.CCLS. )	67	L4
L3	(cook\$ with (time or timing or duration or (start\$ with stop\$ with time))) and @ad<=19970527	8042	L3
L2	L1 and (manag\$ with decision) and ( (design\$ and manufactur\$) or (deploy\$ and train\$) or (operat\$ and maintenance) or (invest\$ with recover\$))	1	L2
L1	5311438.pn. or 5737581.pn. or 5704045.pn.	3	L1

END OF SEARCH HISTORY



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L6: Entry 6 of 9

File: USPT

Jun 8, 1993

US-PAT-NO: 5218527  
DOCUMENT-IDENTIFIER: US 5218527 A

TITLE: Electronic cash register system with transmission means to transmit cooking initiation instructions to a kitchen at suitable times for serving articles of a meal in a desired sequence

DATE-ISSUED: June 8, 1993

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Ishikawa; Kenichi	Yokohama			JP
Fuyama; Seiji	Yokohama			JP

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE	CODE
Matsushita Electric Industrial Co., Ltd.	Osaka			JP		03

APPL-NO: 07/ 768530 [PALM]  
DATE FILED: October 4, 1991

## FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2-038605	February 20, 1990

## PCT-DATA:

APPL-NO	DATE-FILED	PUB-NO	PUB-DATE	371-DATE	102(E)-DATE
PCT/JP91/00198	February 18, 1991	W091/13412	Sep 5, 1991	Oct 4, 1991	Oct 4, 1991

INT-CL: [05] G06F 1/12, G06F 15/22, A01K 43/00

US-CL-ISSUED: 364/405; 364/401, 426/233  
US-CL-CURRENT: 705/15; 426/233, 705/16

FIELD-OF-SEARCH: 364/405, 364/401, 364/513, 364/400, 426/233, 426/243, 99/327, 99/332, 99/328, 99/333, 99/335, 235/375, 235/383

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	4919950	April 1990	Mak	426/233
<input type="checkbox"/>	4922435	May 1990	Cahlander et al.	364/513
<input type="checkbox"/>	5057331	October 1991	Levinson	426/243
<input type="checkbox"/>	5096725	March 1992	Kim	426/233

#### FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
58-8373	January 1983	JP	
1-284964	November 1989	JP	
1-293500	November 1989	JP	

ART-UNIT: 231

PRIMARY-EXAMINER: Weinhardt; Robert A.

ASSISTANT-EXAMINER: Chung; Xuong

ATTY-AGENT-FIRM: Stevens, Davis, Miller & Mosher

#### ABSTRACT:

An electronic cash register system which comprises a control means having a cooking instruction transmission means (18) to transmit cooking instructions to a kitchen at suitable timing, whereby the cooking time, constituent materials and serve timing of each article can be controlled and efficient serving can be realized.

4 Claims, 4 Drawing figures



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L6: Entry 6 of 9

File: USPT

Jun 8, 1993

DOCUMENT-IDENTIFIER: US 5218527 A

TITLE: Electronic cash register system with transmission means to transmit cooking initiation instructions to a kitchen at suitable times for serving articles of a meal in a desired sequence

Abstract Text (1):

An electronic cash register system which comprises a control means having a cooking instruction transmission means (18) to transmit cooking instructions to a kitchen at suitable timing, whereby the cooking time, constituent materials and serve timing of each article can be controlled and efficient serving can be realized.

Application Filing Date (1):

19911004

Brief Summary Text (6):

In more detail, with the prior art ECR system, when dish articles ordered by a customer are entered in the ECR system, the system first issues a customer order slip in step ST-51 and then sends to the kitchen cooking instructions for all articles ordered by the customer at one time in step ST-52.

Brief Summary Text (7):

The above prior art ECR system, which issues a customer order slip and then sends to the kitchen cooking instructions for all articles ordered by the customer at one time, however, has a problem that, when a cook tries to provide the respective dishes to the customer in their best state, he personally must judge the cooking start time of the respective dish articles. As a result when he wrongly judges the cooking start time, the respective dishes are delayed to be served or deteriorated in quality.

Brief Summary Text (9):

The cook, on the other hand, also has complaints such as "when I have too many orders, I cannot correctly judge the cooking start time of the respective order articles", "since it takes great experience to determine the cooking start time an experienced, a cook such as a part time cook cannot judge it", and "since the cooking start time is determined by a human, his fatigue or misjudgement might produce an error."

Brief Summary Text (11):

It is an object of the present invention to provide an electronic cash register system which solves the above problems in the prior art and can automatically judge the cooking start timing of respective articles of the ordered menu to give preferable cooking instructions to the cook.

Brief Summary Text (12):

In accordance with the present invention, the above object is attained by providing an electronic cash register system which comprises registration data memory means for storing therein data such as the cooking time, serving timing, constituent materials, etc. of respective articles as meals, another registration data memory means for storing data such as the cooking time, cooking positions, etc. of the respective constituent materials, and control means for controllably giving cooking instructions to a cook in suitable timing.

Brief Summary Text (13):

In accordance with the present invention, the ECR system is arranged so as to control the issuance of the cooking instructions on the basis of the cooking time.



constituent materials, serving timing, etc. of the respective articles as well as the necessary cooking time, cooking positions, etc. of the respective constituent materials. Accordingly, various defects, which have so far been caused by the cook's judgement of the cooking start timing, etc. of the respective articles, can be easily improved and therefore highly efficient cooking and service can be realized.

Detailed Description Text (6):

Further included in the arrangement of FIG. 2 are a serve timing extraction means 16 for extracting a serve timing of each article from the contents previously stored in a memory means 17, a cooking instruction transmission means 18 for transmitting a cooking instruction to a corresponding one of the displays, a cooking time extraction means 19 for extracting cooking time for each article or each material from the contents previously stored in a memory means 20, a cooking-instruction timing decision means 21 for deciding the transmission timing of the cooking instruction of each article, and a temporarily holding means 22 for holding each cooking instruction until the transmission timing decided by the cooking-instruction timing decision means 21 is met based on a timer means 23.

Detailed Description Text (11):

Subsequently, in step ST-37, it is detected whether or not there remains any unserved articles in the ordered menu. When there are any unserved articles, the cooking time extraction means 19 searches and extracts the cooking time of each unserved article and its constituent materials from the contents of the memory means 20 in step ST-38, the cooking-instruction timing decision means 21 sets a prearranged service time on the cooking finish time of the article requiring the longest cooking time in the remained articles in the ordered menu in step ST-39, and then the temporarily holding means 22 with the timer means 23 temporarily holds the respective cooking instructions until the timing based on the set time.

Detailed Description Text (12):

Thereafter, when a sum of the current time and the cooking time of each article reaches the aforementioned prearranged service time in step ST-40, the temporarily holding means 22 releases to the transmission means each cooking instruction from holding. In step ST-41 on the basis of the detection of the presence or absence of the remaining articles in step ST-42, the cooking-instruction transmission means 18 transmits the cooking instruction to the main display and also to the sub-displays located in the cooking positions in charge.

Detailed Description Text (13):

That is, since the cooking instruction timing of each article is controlled by means of the ECR 1, the cook is not required to judge the cooking start timing of each article. Accordingly, when the cook prepares the dishes according to the cooking instruction timing commanded by the ECR 1, the cooks cooking efficiency can be made remarkably high, which results in the customer receiving satisfactory service of the ordered articles.

Detailed Description Text (15):

The sub-displays have been installed in the respective positions where cooking instructions are transmitted in the foregoing embodiment, but the subdisplays may be replaced by printers. In this case, since intended cooking instructions are printed on suitable paper, the cook can confirm the contents of the cooking instructions at any time, for example, after the articles have been served.

Detailed Description Text (17):

In accordance with the present invention, as is clear from the description of the foregoing embodiment, the ECR can control cooking instructions on the basis of such data as the cooking time, constituent materials, serve timing, etc. of each dish as an article and the necessary cooking time, cooking positions, etc. of the respective constituent materials. Thus various defects caused by cook's misjudgement of the cooking start timing, etc. of each article can be easily removed and highly efficient cooking can be realized, the present invention can advantageously realize timely delivery of dishes to satisfy the customer.

Current US Original Classification (1):

705/15

CLAIMS:

1. An electronic cash register system for transmitting cooking initiation

instructions to a kitchen provided with at least one cooking station, said cooking initiation instructions being transmitted at suitable times for serving articles of a meal in a desired sequence, in accordance with at least one customer order, wherein said articles are chosen by said at least one customer from a group of menu articles, said system comprising:

input means for receiving customer orders and for generating an output representing said customer orders;

transmission means for transmitting cooking initiation instructions to said kitchen;

first registration data memory means for storing information specifying individual menu article cooking times, each of said menu articles comprising at least one constituent material, each of said menu article cooking times constituting a length of time required to cook a menu article;

second registration data memory means for storing information specifying serving time sequences of said menu articles;

third registration data memory means for storing information specifying said at least one constituent material of each of said menu articles;

fourth registration data memory means for storing information specifying individual constituent material cooking times, each of said constituent material cooking times constituting a length of time required to cook a constituent material;

fifth registration data memory means for storing information specifying proper cooking stations for each of said constituent materials; and

control means, receiving said output from said input means, for determining individual start times, at which preparation of the at least one constituent material of said articles selected by said at least one customer is to begin at said cooking stations, by obtaining said stored information from said first to fifth registration data memory means and for controlling said transmission means to transmit cooking initiation instructions for each constituent material of each of said articles chosen by said at least one customer to proper cooking stations at said individual start times.

2. An electronic cash register system according to claim 1, wherein each of said menu article cooking times is equal to a cooking time of its constituent material with a longest constituent material cooking time.

Self



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L6: Entry 1 of 9

File: USPT

Feb 15, 2000

US-PAT-NO: 6026372

DOCUMENT-IDENTIFIER: US 6026372 A

TITLE: Computer system for maintaining current and predicting future food needs

DATE-ISSUED: February 15, 2000

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Savage; John K.	Decatur	GA	30030	

APPL-NO: 08/ 863000 [PALM]

DATE FILED: May 27, 1997

INT-CL: [07] G06 F 19/00, G06 F 17/30

US-CL-ISSUED: 705/15; 705/20, 705/22, 705/28, 705/29

US-CL-CURRENT: 705/15; 705/20, 705/22, 705/28, 705/29

FIELD-OF-SEARCH: 705/15, 705/20, 705/22, 705/28, 705/29, 99/468, 99/486, 99/325, 99/332, 99/327, 99/326, 99/335, 99/342, 219/702, 426/523

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>4388689</u>	June 1983	Hayman et al.	705/15
<input type="checkbox"/>	<u>4530067</u>	July 1985	Dorr	705/15
<input type="checkbox"/>	<u>4569421</u>	February 1986	Sandstedt	186/39
<input type="checkbox"/>	<u>4922435</u>	May 1990	Cahlander et al.	700/247
<input type="checkbox"/>	<u>5003472</u>	March 1991	Perrill et al.	705/15
<input type="checkbox"/>	<u>5128862</u>	July 1992	Mueller	705/15
<input type="checkbox"/>	<u>5132914</u>	July 1992	Cahlander et al.	700/211
<input type="checkbox"/>	<u>5218527</u>	June 1993	Ishikawa et al.	705/15
<input type="checkbox"/>	<u>5253564</u>	October 1993	Rosenbrock et al.	99/328
<input type="checkbox"/>	<u>5357426</u>	October 1994	Morita et al.	700/90
<input type="checkbox"/>	<u>5504589</u>	April 1996	Montague et al.	358/403
<input type="checkbox"/>	<u>5510979</u>	April 1996	Moderi et al.	705/18
<input type="checkbox"/>	<u>5553312</u>	September 1996	Gathey et al.	455/11.1
<input type="checkbox"/>	<u>5616269</u>	April 1997	Fowler et al.	219/720
<input type="checkbox"/>	<u>5653906</u>	August 1997	Fowler et al.	219/716
<input type="checkbox"/>	<u>5812393</u>	September 1998	Drucker	700/15

ART-UNIT: 274

PRIMARY-EXAMINER: Trammell; James P.

ASSISTANT-EXAMINER: Nguyen; Cuong H.

ATTY-AGENT-FIRM: Kennedy, Davis & Hodge, LLP

ABSTRACT:

A computer system (10) is provided which includes an electronic cash registers (11) electronically coupled to a cooking station monitor (12) and input (13), and a manager's station monitor (15), input (16), and printer (17). The system instructs the cook to initiate a cooking process in response to the number of items on hand and items currently being cooked in view of the number of items typically desired to have on hand at a particular time of the day.

13 Claims, 4 Drawing figures



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L6: Entry 1 of 9

File: USPT

Feb 15, 2000

DOCUMENT-IDENTIFIER: US 6026372 A

TITLE: Computer system for maintaining current and predicting future food needs

Abstract Text (1):

A computer system (10) is provided which includes an electronic cash registers (11) electronically coupled to a cooking station monitor (12) and input (13), and a manager's station monitor (15), input (16), and printer (17). The system instructs the cook to initiate a cooking process in response to the number of items on hand and items currently being cooked in view of the number of items typically desired to have on hand at a particular time of the day.

Application Filing Date (1):

19970527

Brief Summary Text (5):

Systems have been designed, such as that shown in U.S. Pat. No. 5,218,527, which instruct the cook when to commence the items of a selected order so that all the items are completed at approximately the same time. This system however does not maintain a current inventory but is responsive to a select order of a customer. Hence, this system merely times when each item of a group of items should be commenced.

Brief Summary Text (8):

In a preferred form of the invention, a computer system is provided for determining and transmitting cooking commencement instruction for selected food items at time intervals to supply future needs of the selected food items. The computer system comprises a programmable memory, a cooking station monitor, a table of selected food items stored on the programmable memory, and a table of desired quantities of the selected food items at desired time intervals relating to the table of selected food items. The table of desired quantities at desired time intervals being stored on the programmable memory. The computer system also includes a table of cooking time to prepare intervals relating to the table of selected food items which is stored on the programmable memory, a variable quantity of processed selected food items stored on the programmable memory, clock means for establishing a current time, and control means for initiating a cooking instruction to the cooking station monitor in response to a selected relation between the current time and the table of desired quantities of the selected food items at desired time intervals and the table of cooking time to prepare intervals, and a selected relation between the variable quantity of selected food items and the table of desired quantities of selected food items at desired time intervals.

Detailed Description Text (3):

FIG. 2 is a block diagram showing the arrangement of a major portion of the ECR 10. This includes a menu registration means 30 for registering therein the selected food items of a menu, slip issuance means 31 for issuing an order slip to a customer, a desired quantity at specific time registration means 32 for registering therein the desired quantity of a selected food item for a desired time period during the day, a special add-on quantity registration means 33 for registering therein a value for special food item quantity circumstances, total quantity desired decision means 34 for computing the desired quantity under special circumstances, total quantity desired registration means 36 for registering therein the total desired value therein, quantity on hand decision and registration means 37 for computing and registering therein the quantity of each food item on-hand, i.e. the quantity presently completely cooked, number of items to cook registration means 38 for registering therein the number of each food item to be cooked with each cooking

instruction, number of items currently being processed decision and registration means 39 for registering therein the number of food items being processed, i.e. the quantity presently being cooked, wasted food items decision means 41 for computing the number of food items to be counted as waste, wasted food items registration means 42 for registering the value of wasted items from the wasted food items decision means 41, time to prepare registration means 43 for registering therein the time it takes to prepare each food item, i.e. the cooking time, prediction commencement time decision means 44 for computing the proper time to transmit a cooking instruction for each food item by subtracting the corresponding value of the time to prepare registration means 43 from the time value of the desired quantity at specific time registration means, prediction commencement time registration means 46 for registering therein the value of the prediction time commencement decision means 44, cooking instruction transmission means 47 for transmitting a cooking instruction to a cook station monitor 12, cooking initiated transmission means 48 for transmitting input of a commencement command from the cooking station input 16, total processed quantity decision means 49 for computing the total quantity of food items on-hand and presently cooking, total processed quantity registration means 50 for registering therein the value of the total processed quantity value decision means 49, and cooking complete transmitting and registration means 51 for transmitting the completion signal from the cooking station input 13 and registering the complete cooking of a food items. FIG. 4 shows an example of table entries entered into the just described registration means. It should be understood that the term "table" may also include a single entry value and that the term "value" is not restricted to a single entry but may include a table of values.

#### Detailed Description Text (4):

The information saved within the menu registration means 30, desired quantity at specific time registration means 32, number of items to cook registration means 38, and the time to prepare registration means 43 is entered into the memory upon the initial operation of the system. However, these values may be updated should it be determined that these values are not accurate portrays of daily activities. The information saved within the special add-on registration means 33 should be updated daily in order to reflect daily variances, such as weather conditions and daily specials on selected food items or special orders.

#### Detailed Description Text (7):

The system also predicts future needs of the food items based upon the value within the total processed quantity registration means 50. This is accomplished by initiating the prediction commencement time decision means 44 which subtracts the value within the time to prepare registration means 43 from the time value within the desired quantity at a specific time registration means 32, the resulting value thereof being entered into the prediction commencement time registration means 46. If the current time is equal to or greater than this value the system then compares the value of the total processed quantity registration means 50 to the value of total quantity desired registration means 36 for the corresponding specific time registration means 32 which corresponds to the prediction commencement registration means 46. Should the value of the total processed quantity registration means 50 be equal to or greater than the total quantity desired registration means 36 the system will continue this protocol until the set conditions change. However, should the value of the total processed quantity registration means 36 be less than the value of the total quantity desired registration means 50 the cooking instruction transmission means 47 causes a cooking instruction to be displayed upon the cooking station monitor 12. Upon receipt of the cooking instruction and the actual commencement of the cooking process by the cook, the cook inputs a commencement signal upon the cooking input 13 which is entered by the cooking initiated transmission means 48. The receipt of the cooking signal causes the total processed quantity decision means 49 to add the value within the number of items to cook registration means 38 to the current value of the total processed quantity registration means 50. The value within the number of items currently being processed registration means 39 is updated by the value within the number of items to cook registration means 38 for that particular desired time interval.

#### Detailed Description Text (10):

Thus, it should be understood that the system instructs the cook to initiate a cooking process based upon the number of items on hand and currently being cooked in view of the number of items typically desired to have on hand at a particular time of the day. As such, the present system predicts future needs rather than statically waiting to instruct a cooking operation upon the receipt of an actual order. It is believed that the system reduces the responsibilities of the manager by predicting

future needs based on particular present circumstances.

Current US Original Classification (1):  
705/15

CLAIMS:

1. A computer system for determining and transmitting cooking commencement instruction for selected food items at time intervals to supply future needs of the selected food items, comprising:

programmable memory;

a cooking station monitor;

a table of selected food items stored on said programmable memory;

a table of desired quantities of the selected food items at desired time intervals relating to said table of selected food items, said table of desired quantities at desired time intervals being stored on said programmable memory;

a table of cooking time to prepare intervals relating to said table of selected food items, said table of cooking time to prepare intervals being stored on said programmable memory;

a variable quantity of processed selected food items stored on said programmable memory;

clock means for establishing a current time;

control means for initiating a cooking instruction to said cooking station monitor in response to a selected relation between the current time and said table of desired quantities of the selected food items at desired time intervals and said table of cooking time to prepare intervals, and a selected relation between the variable quantity of selected food items and said table of desired quantities of selected food items at desired time intervals.

2. The computer system of claim 1 wherein said control means initiates the cooking instruction to said cooking station monitor upon the current time being equal to or less than the desired time interval with said table of desired quantities of the selected food items at desired time interval minus a preparation time interval associated with each selected food item.

3. The computer system of claim 1 wherein said control means further establishes the cooking instruction upon the quantities of processed selected food items being less than the desired quantities within said table of desired quantities of the selected food items at desired time intervals.

6. The computer system of claim 1 further comprising a table of number of food items to be cooked at a time stored on said programmable memory and relating to said table of selected food items.

7. A computer system for determining and transmitting cooking times for selected food items at time intervals to predict future needs of the selected food items, comprising:

programmable memory;

a table of selected food items stored on said programmable memory;

a table of desired quantities of the selected food items at desired time intervals relating to said table of selected food items, said table of desired quantities at desired time intervals being stored on said programmable memory;

a variable quantity of processed selected food items stored on said programmable memory;

clock means for establishing a current time;

control means for initiating a cooking instruction in response to a selected relationship between the current time and said table of desired quantities of the selected food items at desired time intervals, and a selected relationship between the variable quantity of processed selected food items and said table of desired quantity of processed selected food items at desired time intervals.

8. The computer system of claim 7 further comprising a table of cooking time to prepare intervals relating to said table of selected food items, said table of cooking time to prepare intervals being stored on said programmable memory, whereby said control means for initiating a cooking instruction to said cooking station monitor does so in response to a selected relation between the current time and said table of desired quantities of the selected food items at desired time intervals and said table of cooking time to prepare intervals.

9. The computer system of claim 7 wherein said control means initiates the cooking instruction to said cooking station monitor upon the current time being equal to or less than the desired time interval with said table of desired quantities of the selected food items at desired time interval minus a preparation time interval associated with each selected food item.

10. The computer system of claim 7 wherein said control means further establishes the cooking instruction upon the variable quantity of processed selected food items being less than the desired quantities within said table of desired quantities of the selected food items at desired time intervals.

13. The computer system of claim 7 further comprising a table of number of food items to be cooked at a time stored on said programmable memory and relating to said table of selected food items.





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L11: Entry 1 of 5

File: EPAB

Dec 29, 1988

DOCUMENT-IDENTIFIER: GB 2206222 A  
TITLE: Controlling cooking time

Abstract Text (1):

In a cooking oven 1 in which the output of a food probe 2 inserted in a food item 3 is compared with a preset temperature to determine when the food item is cooked, there is provided means such as a microprocessor 7 to predict the time at which the food will be cooked. Repeated measurements are made of the food probe temperature to estimate when the pre-set temperature will be reached. This information is used to control the cooking means 5 to finish the cooking at a preset end time programmed in by the user. ☐

Publication Date (1):  
19881229



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L11: Entry 1 of 5

File: EPAB

Dec 29, 1988

PUB-NO: GB002206222A  
DOCUMENT-IDENTIFIER: GB 2206222 A  
TITLE: Controlling cooking time

PUBN-DATE: December 29, 1988

## INVENTOR-INFORMATION:

NAME

COUNTRY

HAWLEY, ARTHUR DEREK

## ASSIGNEE-INFORMATION:

NAME

COUNTRY

CREDA LTD

APPL-NO: GB08808214

APPL-DATE: April 8, 1988


PRIORITY-DATA: GB08708406A (April 8, 1987)

US-CL-CURRENT: 219/712

INT-CL (IPC): H05B 6/68

EUR-CL (EPC): F24C003/12; H05B006/68

## ABSTRACT:

In a cooking oven 1 in which the output of a food probe 2 inserted in a food item 3 is compared with a preset temperature to determine when the food item is cooked. there is provided means such as a microprocessor 7 to predict the time at which the food will be cooked. Repeated measurements are made of the food probe temperature to estimate when the pre-set temperature will be reached. This information is used to control the cooking means 5 to finish the cooking at a preset end time programmed in by the user. 



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L11: Entry 2 of 5

File: EPAB

Oct 12, 1988

PUB-NO: GB002203320A  
DOCUMENT-IDENTIFIER: GB 2203320 A  
TITLE: Cooking ovens

PUBN-DATE: October 12, 1988

## INVENTOR-INFORMATION:

NAME

COUNTRY

RICHARDS, JOHN

## ASSIGNEE-INFORMATION:

NAME

COUNTRY

CREDA LTD

APPL-NO: GB08808213

APPL-DATE: April 8, 1988


PRIORITY-DATA: GB08708405A (April 8, 1987)

US-CL-CURRENT: 219/712

INT-CL (IPC): H05B 6/68; F24C 7/02; F24C 7/08

EUR-CL (EPC): H05B006/68

## ABSTRACT:

In a cooking oven 1 in which the output of a food probe 2 inserted in a food item 3 is compared with a preset temperature to determine when the food item is cooked, there is provided means such as a microprocessor 6 to predict the time at which the food will be cooked. Repeated measurements are made of the food probe temperature to estimate when the pre-set temperature will be reached. The predicted cooking time may be displayed continuously or on demand. The oven may be a gas, electric, microwave or combined microwave/fanned convection oven. 



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L11: Entry 2 of 5

File: EPAB

Oct 12, 1988

DOCUMENT-IDENTIFIER: GB 2203320 A  
TITLE: Cooking ovens

Abstract Text (1):

In a cooking oven 1 in which the output of a food probe 2 inserted in a food item 3 is compared with a preset temperature to determine when the food item is cooked, there is provided means such as a microprocessor 6 to predict the time at which the food will be cooked. Repeated measurements are made of the food probe temperature to estimate when the pre-set temperature will be reached. The predicted cooking time may be displayed continuously or on demand. The oven may be a gas, electric,

microwave or combined microwave/fanned convection oven. 

Publication Date (1):  
19881012



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L11: Entry 3 of 5

File: DWPI

Dec 29, 1988

DERWENT-ACC-NO: 1989-001797  
DERWENT-WEEK: 198901  
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TITLE: Controlling cooking time using food probe - makes repeated measurements of food probe temp. to estimate when pre-set temp. will be reached

INVENTOR: HAWLEY, A D

PATENT-ASSIGNEE: CREDA LTD (CREDN)

PRIORITY-DATA: 1987GB-0008406 (April 8, 1987), 1988GB-0008214 (April 8, 1988)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
GB 2206222 A	December 29, 1988		011	
GB 2206222 B	November 21, 1990		000	

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
GB 2206222A	April 8, 1988	1988GB-0008214	

INT-CL (IPC): H05B 6/68

ABSTRACTED-PUB-NO: GB 2206222A

## BASIC-ABSTRACT:

The cooking oven comprises a food probe for insertion in a food item to be cooked and for affording an output indicative of its temperature. A cooker causes the food item to be cooked and the output of the food probe is compared with a preset temperature for determining when the food item is cooked. A timer presets a required time at which the food item is to be cooked. A circuit operable in conjunction with the output of the probe controls the cooker whereby the time at which the food item is cooked corresponds to the preset time. A processor determines the rate of temperature rise of the food probe predicting the time at which the food item will be cooked and for controlling the cooker whereby the predicted time corresponds to the preset time.

USE - Microwave ovens, combination microwave/anned convection ovens or gas and electric ovens.

ABSTRACTED-PUB-NO: GB 2206222B

## EQUIVALENT-ABSTRACTS:

The cooking oven comprises a food probe for insertion in a food item to be cooked and for affording an output indicative of its temperature. A cooker causes the food item to be cooked and the output of the food probe is compared with a preset temperature for determining when the food item is cooked. A timer presets a required time at which the food item is to be cooked. A circuit operable in conjunction with the output of the probe controls the cooker whereby the time at which the food item is cooked corresponds to the preset time. A processor determines the rate of temperature rise of the food probe predicting the time at which the food item will be cooked and for controlling the cooker whereby the predicted time corresponds to the preset time.

• USE - Microwave ovens, combination microwave/anned convection ovens or gas and electric ovens.

CHOSEN-DRAWING: Dwg.0/4 Dwg.0/4

DERWENT-CLASS: X25 X27

EPI-CODES: X25-B04; X27-C09;



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L11: Entry 3 of 5

File: DWPI

Dec 29, 1988

DERWENT-ACC-NO: 1989-001797

DERWENT-WEEK: 198901

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TITLE: Controlling cooking time using food probe - makes repeated measurements of food probe temp. to estimate when pre-set temp. will be reached

Basic Abstract Text (1):

The cooking oven comprises a food probe for insertion in a food item to be cooked and for affording an output indicative of its temperature. A cooker causes the food item to be cooked and the output of the food probe is compared with a preset temperature for determining when the food item is cooked. A timer presets a required time at which the food item is to be cooked. A circuit operable in conjunction with the output of the probe controls the cooker whereby the time at which the food item is cooked corresponds to the preset time. A processor determines the rate of temperature rise of the food probe predicting the time at which the food item will be cooked and for controlling the cooker whereby the predicted time corresponds to the preset time.

PF Publication Date (1):

19881229

PF Publication Date (2):

19901121

Equivalent Abstract Text (1):

The cooking oven comprises a food probe for insertion in a food item to be cooked and for affording an output indicative of its temperature. A cooker causes the food item to be cooked and the output of the food probe is compared with a preset temperature for determining when the food item is cooked. A timer presets a required time at which the food item is to be cooked. A circuit operable in conjunction with the output of the probe controls the cooker whereby the time at which the food item is cooked corresponds to the preset time. A processor determines the rate of temperature rise of the food probe predicting the time at which the food item will be cooked and for controlling the cooker whereby the predicted time corresponds to the preset time.

Standard Title Terms (1):

CONTROL COOK TIME FOOD PROBE REPEAT MEASURE FOOD PROBE TEMPERATURE ESTIMATE PRE SET TEMPERATURE REACH



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L11: Entry 4 of 5

File: DWPI

Oct 12, 1988

DERWENT-ACC-NO: 1988-288058  
DERWENT-WEEK: 198841  
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TITLE: Electric, gas or microwave cooking oven - has microprocessor predicting time at which food will be cooked depending on food probe temp.

INVENTOR: RICHARDS, J

PATENT-ASSIGNEE: CRED A LTD (CREDN)

PRIORITY-DATA: 1987GB-0008405 (April 8, 1987), 1988GB-0008213 (April 8, 1988)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
GB 2203320 A	October 12, 1988		010	
GB 2203320 B	May 8, 1991		000	

## APPLICATION-DATA:

PUB-NO	APPL-DATE	APPL-NO	DESCRIPTOR
GB 2203320A	April 8, 1988	1988GB-0008213	

INT-CL (IPC): F24C 7/02; H05B 6/68

ABSTRACTED-PUB-NO: GB 2203320A

## BASIC-ABSTRACT:

The output of a food probe inserted in a food item is compared with a preset temperature to determine when the food item is cooked. A microprocessor predicts the time at which the food will be cooked. Repeated measurements are made of the probe temperature to estimate when the pre-set temperature will be reached. The predicted cooking time may be displayed continuously or on demand.

The second derivative of the variation of probe temperature with respect to time is measured in which the processor determines the rate of temperature rise of the probe after a peak has occurred in the second derivative. The processor is arranged to repeatedly predict the time at which the food item will be cooked.

ADVANTAGE - Provides good indication of time at which cooking will be completed.

ABSTRACTED-PUB-NO: GB 2203320B

## EQUIVALENT-ABSTRACTS:

A cooking oven comprising a food probe for insertion in a food item to be cooked and for affording an output indicative of the temperature thereof, means for comparing, after a peak has occurred in the second derivative of the output of the food probe with respect to time, the output of the food probe with a preset temperature for determining when said food item is cooked, and means operable on the output of the food probe for predicting the time at which said food item will be cooked.

CHOSEN-DRAWING: Dwg.0/4

DERWENT-CLASS: Q74 X25 X27  
EPI-CODES: X25-B04; X27-C09;